

OK for class 345 and 66

claims 1-11, 15-25, and 29

WHAT IS CLAIMED IS:

1. An image processing apparatus capable of variable magnification processing of output information, comprising:
 - 5 holding means for holding output images in a first size and output positions thereof, and holding output images in a second size and output positions thereof;
 - 10 selection means for selecting a desired image from the output images held by said holding means, and designating an output size of the selected image;
 - 15 generation means for generating an output image corresponding to the output size on the basis of a ratio of change in output image between the first and second sizes held by said holding means of the image selected by said selection means;
 - 20 determination means for determining a rendering position of the output image corresponding to the output size on the basis of a ratio of change in output position between the first and second sizes held by said holding means of the image selected by said selection means; and
 - 25 rendering means for rendering the output image generated by said generation means at the rendering position determined by said determination means.
2. The apparatus according to claim 1, wherein said selection means selects the image from the output images in the first size held by said holding means.

3. The apparatus according to claim 1, wherein said rendering means renders the output image generated by said generation means on a display screen of a display device.
4. The apparatus according to claim 3, further comprising 5 output means for outputting rendering information of said rendering means to an output device which permanently visually displays the rendering information in units of pages.
5. The apparatus according to claim 1, wherein said 10 rendering means renders the output image generated by said generation means as print information to a printing apparatus.
6. The apparatus according to claim 1, wherein the output image rendered by said rendering means is frame information 15 of image information, and said apparatus further comprises:
 - designation means for designating fitting information to be fitted in the frame information; and
 - fitting means for fitting the fitting information designated by said designation means into a frame of the frame 20 information.
7. The apparatus according to claim 6, wherein after fitting by said fitting means, a rendering size of the frame information of the image selected by said selection means is allowed to change, and when the rendering size of the frame 25 information is changed after fitting, a fitting position of the fitting information is changed in correspondence with

movement of the rendering position determined by said determination means to hold a fitting positional relationship with the frame information.

8. The apparatus according to claim 7, wherein when the fitting information designated by said designation means is image information, said fitting means does not change the fitting information irrespective of the change in size of the frame information of the image selected by said selection means, and renders an image in the fitting information, which corresponds to an interior of a frame of the frame information, as the fitting information in the frame.

9. The apparatus according to claim 7, wherein when the fitting information designated by said designation means is character information, said fitting means displays the character information within a frame of the frame information of the image selected by said selection means.

10. The apparatus according to claim 9, wherein when a size of the character information in a row direction falls outside the frame, said fitting means fits the character information by automatically inserting a carriage return so as to make the character information fall within the frame.

11. The apparatus according to claim 1, wherein a moving amount of a rendering position of the output image corresponding to the ratio of change in output position of the output image between the first and second sizes is compressed in the vicinity of an edge portion of an

outputtable range so as to prevent the rendering position from falling outside the outputtable range of an output device upon movement of the rendering position determined by said determination means for the output image selected by said selection means.

(12) An image processing apparatus for rendering an object set generated by document processing means for processing a character and figure or image processing means for processing an image,

10 the object set being formed by more than one objects, each object having an attribute for rendering which is associated with a mapping method upon changing a size of the object, and can be individually set,

said apparatus comprising:

15 edit means for editing the objects that form the object set;

rendering means for rendering based on attributes in units of objects;

changing means for changing a size of the object set;

20 generation means for generating new size information of the object set in correspondence with the change in size by said changing means; and

determination means for determining a new rendering attribute of each object on the basis of the rendering attribute of each of the objects that form the object set 25 in accordance with the size information generated by said

claims 12-14, 26-28, 5, 6, 10
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generation means

 said rendering means rendering on the basis of the rendering attributes of the objects determined by said determination means.

5 13. The apparatus according to claim 12, wherein said edit means can edit a character or character string as an edit function of the objects that form the object set.

10 14. The apparatus according to claim 12, wherein said edit means can edit a figure as an edit function of the objects that form the object set.

15 15. An image processing method for an image processing apparatus which comprises holding means for holding output images in a first size and output positions thereof, and holding output images in a second size and output positions thereof, and is capable of variable magnification processing of output information, comprising:

 the selection step of selecting a desired image from the output images held by said holding means, and designating an output size of the selected image;

20 the generation step of generating an output image corresponding to the output size on the basis of a ratio of change in output image between the first and second sizes held by said holding means of the image selected in the selection step;

25 the determination step of determining a rendering position of the output image corresponding to the output size

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1 on the basis of a ratio of change in output position between the first and second sizes held by said holding means of the image selected in the selection step; and

5 the rendering step of rendering the output image generated in the generation step at the rendering position determined in the determination step.

10 16. The method according to claim 15, wherein the selection step includes the step of selecting the image from the output images in the first size held by said holding means.

15 17. The method according to claim 15, wherein the rendering step includes the step of rendering the output image generated in the generation step on a display screen of a display device.

18. The method according to claim 17, further comprising

15 the output step of outputting rendering information in the rendering step to an output device which permanently visually displays the rendering information in units of pages.

19. The method according to claim 15, wherein the rendering step includes the step of rendering the output image

20 generated in the generation step as print information to a printing apparatus.

20. The method according to claim 15, wherein the output image rendered in the rendering step is frame information of image information, and said method further comprises:

25 the designation step of designating fitting information to be fitted in the frame information; and

the fitting step of fitting the fitting information designated in the designation step into a frame of the frame information

21. The method according to claim 20, wherein after fitting
5 in the fitting step, a rendering size of the frame information
of the image selected in the selection step is allowed to
change, and when the rendering size of the frame information
is changed after fitting, a fitting position of the fitting
information is changed in correspondence with movement of
10 the rendering position determined in the determination step
to hold a fitting positional relationship with the frame
information.

22. The method according to claim 21, wherein when the fitting information designated in the designation step is image information, the fitting step includes the step of inhibiting the fitting information from changing irrespective of the change in size of the frame information of the image selected in the selection step, and rendering an image in the fitting information, which corresponds to an interior of a frame of the frame information, as the fitting information in the frame.

23. The method according to claim 21, wherein when the fitting information designated in the designation step is character information, the fitting step includes the step of displaying the character information within a frame of the frame information of the image selected in the selection

step.

24. The method according to claim 23, wherein when a size of the character information in a row direction falls outside the frame, the fitting step includes the step of fitting the 5 character information by automatically inserting a carriage return so as to make the character information fall within the frame.

25. The method according to claim 15, wherein a moving amount of a rendering position of the output image 10 corresponding to the ratio of change in output position of the output image between the first and second sizes is compressed in the vicinity of an edge portion of an outputtable range so as to prevent the rendering position from falling outside the outputtable range of an output device upon movement of the rendering position determined 15 in the determination step for the output image selected in the selection step.

26. An image processing method for an image processing apparatus for rendering an object set generated by document 20 processing means for processing a character and figure or image processing means for processing an image, the object set being formed by more than one objects, each object having an attribute for rendering which is associated with a mapping method upon changing a size of the 25 object, and can be individually set, said method comprising:

the edit step of editing the objects that form the object set;

the rendering step of rendering based on attributes in units of objects;

5 the changing step of changing a size of the object set;

the generation step of generating new size information of the object set in correspondence with the change in size in the changing step; and

the determination step of determining a new rendering

10 attribute of each object on the basis of the rendering attribute of each of the objects that form the object set in accordance with the size information generated in the generation step,

the rendering step including the step of rendering on

15 the basis of the rendering attributes of the objects determined in the determination step.

27. The method according to claim 26, wherein the edit step can edit a character or character string as an edit function of the objects that form the object set.

20 28. The method according to claim 26, wherein the edit step can edit a figure as an edit function of the objects that form the object set.

29. A computer-readable memory which stores a program code of image processing for an image processing apparatus which comprises holding means for holding output images in a first size and output positions thereof, and holding output images

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in a second size and output positions thereof, and is capable of variable magnification processing of output information, comprising:

5 a program code of the selection step of selecting a desired image from the output images held by said holding means, and designating an output size of the selected image;

10 a program code of the generation step of generating an output image corresponding to the output size on the basis of a ratio of change in output image between the first and second sizes held by said holding means of the image selected in the selection step;

15 a program code of the determination step of determining a rendering position of the output image corresponding to the output size on the basis of a ratio of change in output position between the first and second sizes held by said holding means of the image selected in the selection step; and

20 a program code of the rendering step of rendering the output image generated in the generation step at the rendering position determined in the determination step.

30. A computer-readable memory which stores a program code of image processing for an image processing apparatus for rendering an object set generated by document processing means for processing a character and figure or image processing means for processing an image,

25 the object set being formed by more than one objects,

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each object having an attribute for rendering which is associated with a mapping method upon changing a size of the object, and can be individually set,

said program code comprising:

5 a program code of the edit step of editing the objects that form the object set;

a program code of the rendering step of rendering based on attributes in units of objects;

10 a program code of the changing step of changing a size of the object set;

a program code of the generation step of generating new size information of the object set in correspondence with the change in size in the changing step; and

15 a program code of the determination step of determining a new rendering attribute of each object on the basis of the rendering attribute of each of the objects that form the object set in accordance with the size information generated in the generation step,

the rendering step including the step of rendering on 20 the basis of the rendering attributes of the objects determined in the determination step.

31. An image processing apparatus capable of variable magnification processing of output information, comprising:

25 instruction means for instructing simultaneous variable magnification processing of a specific region; and changing means for changing a layout without changing

a size of a character itself in the specific region when said instruction means instructs the variable magnification processing of the specific region in one of vertical and horizontal directions, and changing the size of the character itself without changing the layout when said instruction means instructs the variable magnification processing of the specific region in both the vertical and horizontal directions.

32. The apparatus according to claim 31, wherein said changing means changes the layout by changing the number of lines and the number of characters of character information.

33. The apparatus according to claim 31, wherein when said instruction means instructs the variable magnification processing of the specific region in one of the vertical and horizontal directions, said changing means does not change a size of an image in the specific region.

34. The apparatus according to claim 31, wherein the specific region, the variable magnification processing of which is instructed by said instruction means, is a region in a frame including a fitted region, which is registered in advance.

35. The apparatus according to claim 34, wherein said changing means comprises:

holding means for holding an output image of the frame in a first size and an output position of the output image in the first size, and an output image of the frame in a second

size and an output position of the output image in the second size; and

generation means for generating a size-changed frame image corresponding to an instructed magnification factor 5 on the basis of a ratio of change in output image between the first and second sizes held by said holding means of a size-changed image of the frame instructed by said instruction means.

36. An image processing method for an image processing 10 apparatus capable of variable magnification processing of output information, comprising:

the instruction step of instructing simultaneous variable magnification processing of a specific region; and

the changing step of changing a layout without changing 15 a size of a character itself in the specific region when the variable magnification processing of the specific region in one of vertical and horizontal directions is instructed in the instruction step, and changing the size of the character itself without changing the layout when the variable 20 magnification processing of the specific region in both the vertical and horizontal directions is instructed in the instruction step.

37. The method according to claim 36, wherein when the variable magnification processing of the specific region in 25 one of the vertical and horizontal directions is instructed in the instruction step, a size of an image in the specific

region is not changed.

38. The method according to claim 36, wherein the specific region, the variable magnification processing of which is instructed in the instruction step, is a region in a frame including a fitted region, which is registered in advance.

39. The method according to claim 38, wherein a size-changed frame image corresponding to an instructed magnification factor is generated on the basis of a ratio of change in output image between first and second sizes held by holding means for holding an output image of the frame in a first size and an output position of the output image in the first size, and an output image of the frame in a second size and an output position of the output image in the second size.

40. A computer-readable memory which stores a program code for image processing in an image processing apparatus capable of variable magnification processing of output information, comprising:

20 a program code of the instruction step of instructing simultaneous variable magnification processing of a specific region; and

25 a program code of the changing step of changing a layout without changing a size of a character itself in the specific region when the variable magnification processing of the specific region in one of vertical and horizontal directions is instructed in the instruction step, and changing the size of the character itself without changing the layout when the

variable magnification processing of the specific region in both the vertical and horizontal directions is instructed in the instruction step.